



## Complete Summary

### TITLE

Central line-associated blood stream infection (CLAB) rate: percentage of paediatric intensive care unit (ICU)-associated centrally-inserted central line-associated blood stream infection (CI-CLAB), during the 6 month time period.

### SOURCE(S)

Australian Council on Healthcare Standards (ACHS). ACHS clinical indicator users' manual 2009. ULTIMO NSW: Australian Council on Healthcare Standards (ACHS); 2009 Jan. 853 p.

## Measure Domain

### PRIMARY MEASURE DOMAIN

Outcome

The validity of measures depends on how they are built. By examining the key building blocks of a measure, you can assess its validity for your purpose. For more information, visit the [Measure Validity](#) page.

### SECONDARY MEASURE DOMAIN

Does not apply to this measure

## Brief Abstract

### DESCRIPTION

This measure is used to assess the percentage of paediatric intensive care unit (ICU)-associated centrally-inserted central line-associated blood stream infection (CI-CLAB), during the 6 month time period.

The rate of CLAB for this indicator is expressed per 1000 central line-days and each is calculated and reported separately.

### RATIONALE

Central line-associated blood stream infections (CLABs) are responsible for 20 to 40% of healthcare-associated blood stream infections. Risks for occurrence differ amongst clinical units dependent on the type of line used and patient intrinsic factors. A significant proportion of CLAB events are preventable through adoption

of best clinical practice. The occurrence of healthcare-associated blood-stream infections (BSIs) can be used as a measure of the safety of key clinical practice processes within a unit.

As absolute rates of central line-associated infections are in general quite low, it is important for units to realise that unless the line-day denominator for the surveillance period is large, the standard error of an individual rate measurement is high. Suspected infection trends within a unit should therefore be carefully examined by appropriate statistical measures such as process control charts and other quality improvement tools to evaluate significance, at time intervals also determined by statistical considerations.

Timely investigation of significantly higher than expected numbers of events or in larger units, rates of infection, may identify system issues relating to preventative factors for documentation and corrective action.

### **PRIMARY CLINICAL COMPONENT**

Paediatric intensive care unit (ICU); centrally-inserted central line-associated blood stream infection (CI-CLAB)

### **DENOMINATOR DESCRIPTION**

Total number of centrally-inserted (CI) central line-days in paediatric intensive care unit (ICU), during the 6 month time period (see the related "Denominator Inclusions/Exclusions" field in the Complete Summary)

### **NUMERATOR DESCRIPTION**

Total number of paediatric intensive care unit (ICU)-associated centrally-inserted central line-associated blood stream infection (CI-CLAB), during the 6 month time period (see the related "Numerator Inclusions/Exclusions" field in the Complete Summary)

## **Evidence Supporting the Measure**

### **EVIDENCE SUPPORTING THE CRITERION OF QUALITY**

- A formal consensus procedure involving experts in relevant clinical, methodological, and organizational sciences
- One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

## **Evidence Supporting Need for the Measure**

### **NEED FOR THE MEASURE**

Use of this measure to improve performance

### **EVIDENCE SUPPORTING NEED FOR THE MEASURE**

Australian Council on Healthcare Standards (ACHS). Australasian clinical indicator report 2001-2007. Determining the potential to improve quality of care: 9th edition. ULTIMO NSW: Australian Council on Healthcare Standards (ACHS); 2008. 611 p.

### State of Use of the Measure

#### **STATE OF USE**

Current routine use

#### **CURRENT USE**

Internal quality improvement

### Application of Measure in its Current Use

#### **CARE SETTING**

Hospitals

#### **PROFESSIONALS RESPONSIBLE FOR HEALTH CARE**

Physicians

#### **LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED**

Single Health Care Delivery Organizations

#### **TARGET POPULATION AGE**

Children

#### **TARGET POPULATION GENDER**

Either male or female

#### **STRATIFICATION BY VULNERABLE POPULATIONS**

Unspecified

### Characteristics of the Primary Clinical Component

#### **INCIDENCE/PREVALENCE**

See the "Rationale" field.

#### **ASSOCIATION WITH VULNERABLE POPULATIONS**

Unspecified

## **BURDEN OF ILLNESS**

Unspecified

## **UTILIZATION**

Unspecified

## **COSTS**

The 2003 *National Strategy to Address Health Care Associated Infections*, developed by the Australian Council for Safety and Quality in Health Care, suggests that blood stream infections (BSIs) may be costing Australia up to \$686 million each year.

## **EVIDENCE FOR COSTS**

Australian Council on Healthcare Standards (ACHS). ACHS clinical indicator users' manual 2009. ULTIMO NSW: Australian Council on Healthcare Standards (ACHS); 2009 Jan. 853 p.

# **Institute of Medicine National Healthcare Quality Report Categories**

## **IOM CARE NEED**

Getting Better

## **IOM DOMAIN**

Effectiveness  
Safety

# **Data Collection for the Measure**

## **CASE FINDING**

Users of care only

## **DESCRIPTION OF CASE FINDING**

Centrally-inserted (CI) central line-days in paediatric intensive care unit (ICU), during the 6 month time period

## **DENOMINATOR SAMPLING FRAME**

Patients associated with provider

## DENOMINATOR INCLUSIONS/EXCLUSIONS

### Inclusions

Total number of centrally-inserted (CI) central line-days in paediatric intensive care unit (ICU), during the 6 month time period

#### Notes:

- Central lines are classified as intravascular devices with a tip ending in a major vein or artery in the abdomen or chest.
- A centrally-inserted (CI) central line is one in which the skin entry point is on the trunk of the patient.
- ICU includes any general or speciality (i.e., cardio-thoracic, burns, neurosurgical or coronary care) intensive care unit. ICUs are stratified according to their designation as either adult or paediatric.
- When calculating CI central line-days, all types of CI central lines (cuffed and non-cuffed, implanted, etc.) *in situ* in a specific unit during the time period under study are included. Patients with two CI central lines in place for one day are counted as one CI central line-day.

### Exclusions

Unspecified

## RELATIONSHIP OF DENOMINATOR TO NUMERATOR

All cases in the denominator are equally eligible to appear in the numerator

## DENOMINATOR (INDEX) EVENT

Institutionalization  
Therapeutic Intervention

## DENOMINATOR TIME WINDOW

Time window brackets index event

## NUMERATOR INCLUSIONS/EXCLUSIONS

### Inclusions

Total number of paediatric intensive care unit (ICU)-associated centrally-inserted central line-associated blood stream infection (CI-CLAB), during the 6 month time period

#### Notes:

- CLAB is defined as a blood stream infection (BSI) with no other apparent focus of infection where a central line has been *in situ* within 48 hours of the event.
- Diagnosis of BSI must meet specific criteria set out in Appendix 6 of the original measure documentation.
- ICU-associated events are CLABs that manifest at least 48 hours after admission to ICU or occur within 48 hours of discharge from ICU.

### Exclusions

Unspecified

## **MEASURE RESULTS UNDER CONTROL OF HEALTH CARE PROFESSIONALS, ORGANIZATIONS AND/OR POLICYMAKERS**

The measure results are somewhat or substantially under the control of the health care professionals, organizations and/or policymakers to whom the measure applies.

### **NUMERATOR TIME WINDOW**

Fixed time period

### **DATA SOURCE**

Medical record

### **LEVEL OF DETERMINATION OF QUALITY**

Not Individual Case

### **OUTCOME TYPE**

Adverse Outcome

### **PRE-EXISTING INSTRUMENT USED**

Unspecified

## **Computation of the Measure**

### **SCORING**

Rate

### **INTERPRETATION OF SCORE**

Better quality is associated with a lower score

### **ALLOWANCE FOR PATIENT FACTORS**

Unspecified

### **STANDARD OF COMPARISON**

External comparison at a point in time  
External comparison of time trends  
Internal time comparison

## Evaluation of Measure Properties

### EXTENT OF MEASURE TESTING

Unspecified

## Identifying Information

### ORIGINAL TITLE

Indicator area 2: central line-associated blood stream infections CI 2.5.

### MEASURE COLLECTION

[Australian Council on Healthcare Standards \(ACHS\) Equip Clinical Indicators](#)

### MEASURE SET NAME

[Infection Control Indicators](#)

### DEVELOPER

Australian Council on Healthcare Standards

### FUNDING SOURCE(S)

Funding is direct Australian Council on Healthcare Standards (ACHS) funding sourced through our membership. ACHS does not receive external funding from the government or other sources.

### COMPOSITION OF THE GROUP THAT DEVELOPED THE MEASURE

Our terms of reference dictate the composition of the working parties that develop our indicators and include the following:

- Two Clinicians -- nominated by the relevant specialty college/association/society, one nominated to be the chair of the working party
- Private Hospital Representative -- nominated by the Australian Private Hospital Association
- Consumer Representative -- nominated by the Consumer Health Forum of Australia
- Coding Representative -- nominated by the National Centre for Clinical classification on Health
- Quality Health New Zealand, nominated by QHNZ (if applicable)
- Epidemiological/Clinical Research Representative, Director of Health Services Research Group, University of Newcastle
- Australian Council on Healthcare Standards (ACHS) Representatives -- Clinical Director, Coordinator, Administrative Assistant
- Other Expert Stakeholders, as required

## **FINANCIAL DISCLOSURES/OTHER POTENTIAL CONFLICTS OF INTEREST**

None

## **ADAPTATION**

The Australian Council on Healthcare Standards (ACHS) Infection Control Indicators are in accordance with the standard set of definitions published by the Australian Council for Safety and Quality in Health Care's, Health Care Associated Infections Advisory Committee (HCAIAC) and Surveillance Working Party.

The definitions were originally developed by the National Advisory Board of the Australian Infection Control Association based on the National Nosocomial Infections Surveillance Systems, the Nosocomial Infection National Surveillance System and from the Public Health Laboratory Service of the UK (PHLS).

In response to feedback from participating organisations and in keeping with the above definitions, the indicators published as version 3 have been modified to either improve the understanding of the indicator definitions or improve collection methodologies.

## **RELEASE DATE**

2002 Jan

## **REVISION DATE**

2009 Jan

## **MEASURE STATUS**

This is the current release of the measure.

This measure updates a previous version: Australian Council on Healthcare Standards (ACHS). ACHS clinical indicator users' manual 2008. ULTIMO NSW: Australian Council on Healthcare Standards (ACHS); 2007 Dec. 776 p.

## **SOURCE(S)**

Australian Council on Healthcare Standards (ACHS). ACHS clinical indicator users' manual 2009. ULTIMO NSW: Australian Council on Healthcare Standards (ACHS); 2009 Jan. 853 p.

## **MEASURE AVAILABILITY**

The individual measure, "Indicator Area 2: Central Line-Associated Blood Stream Infections CI 2.5," is published in "ACHS Clinical Indicator Users' Manual 2009."



For more information contact, the Australian Council on Healthcare Standards (ACHS), 5 Macarthur Street, ULTIMO NSW 2007; Phone: (02) 9281 9955; Fax: (02) 9211 9633; E-mail: [pos@achs.org.au](mailto:pos@achs.org.au); Web site: [www.achs.org.au](http://www.achs.org.au).

## **COMPANION DOCUMENTS**

The following is available:

- Australian Council on Healthcare Standards (ACHS). Australasian clinical indicator report 2001-2007. Determining the potential to improve quality of care: 9th edition. ULTIMO NSW: Australian Council on Healthcare Standards (ACHS); 2008. 611 p. This document is available in Portable Document Format (PDF) from the [Australian Council on Healthcare Standards \(ACHS\) Web site](http://www.achs.org.au).

## **NQMC STATUS**

This NQMC summary was completed by ECRI Institute on August 11, 2008. This NQMC summary was updated by ECRI Institute on September 11, 2009.

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